

# Philips Business Solutions

**E** User Manual



**TYPE NR. BDS4621**

# PHILIPS

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## 1. IMPORTANT SAFETY INSTRUCTIONS

### Read before operating equipment

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any of the ventilation openings. Install in accordance with the manufacturers instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other.  
A grounding type plug has two blades and third grounding prong. The wide blade or third prong are provided for your safety. When the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. This product may contain lead and mercury. Disposal of these materials may be regulated due to environmental considerations. For disposal or recycling information, please contact your local authorities or the Electronic Industries Alliance: [www.eiae.org](http://www.eiae.org)



16. Damage Requiring Service - The appliance should be serviced by qualified service personnel when:
  - A. The power supply cord or the plug has been damaged;
  - B. Objects have fallen, or liquid has been spilled into the appliance;
  - C. The appliance has been exposed to rain;
  - D. The appliance does not appear to operate normally or exhibits a marked change in performance;
  - E. The appliance has been dropped, or the enclosure damaged.
17. Tilt/Stability:

All displays must comply with recommended international global safety standards for tilt and stability properties of its cabinet design.

  - Do not compromise these design standards by applying excessive pull force to the front, or top, of the cabinet which could ultimately overturn the product.
  - Do not endanger yourself, or children, by placing electronic equipment/toys on the top of the cabinet. Such items could unsuspectingly fall from the top of the set and cause product damage and/or personal injury.
18. Wall or Ceiling Mounting - The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.
19. Power Lines - An outdoor antenna should be located away from power lines.
20. Outdoor Antenna Grounding - If an outside antenna is connected to the receiver, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges.

Section 810 of the National Electric Code, ANSI/NFPA No. 70-1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding connectors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.
21. Object and Liquid Entry - Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
22. Battery Usage **CAUTION** - To prevent battery leakage that may result in bodily injury, property damage, or damage to the unit:
  - Install all batteries correctly, with + and - aligned as marked on the unit
  - Do not mix batteries (old and new or carbon and alkaline, etc.)
  - Remove batteries when the unit is not used for a long time.

**Note to the CATV system installer:**

This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

**KNOW THESE SAFETY SYMBOLS**



This "bolt of lightning" indicates uninsulated material within your unit, which may cause an electrical shock. For the safety of everyone in your household, please do not remove product covering.



For the safety of everyone in your household, please do not remove product covering. The "exclamation point" calls attention to features for which you should read the enclosed literature closely to prevent operating and maintenance problems.

**WARNING:**

To reduce the risk of fire or electric shock, this appliance should not be exposed to rain or moisture and objects filled with liquids, such as vases, should not be placed on this apparatus.

**CAUTION:**

To prevent electric shock, match wide blade of plug to wide slot, and fully insert.

**ATTENTION:**

Pour éviter les chocs électriques, introduire la lame la plus large de la fiche dans la bome correspondante de la prise et pousser jusqu'au fond.

### **CLEANING & CARE**

- To avoid possible shock hazard, please be sure that the television is unplugged from the electrical outlet before cleaning.
- When cleaning the television screen, take care not to scratch or damage the screen surface (avoid wearing jewelry or using anything abrasive).
- Wipe the front of the screen with a clean cloth dampened with water. Use even, easy, vertical strokes when cleaning.
- Gently wipe the cabinet surfaces with a clean cloth or sponge dampened in a solution of cool clear water. Use a clean dry cloth to dry the wiped surfaces.
- Occasionally vacuum the ventilation holes or slots in the cabinet back.
- Never use thinners, insecticide sprays, or other chemicals on or near the cabinet, as they might cause permanent marring of the cabinet finish.

### **END-OF-LIFE DISPOSAL**

- This Philips product and its packaging contain materials that can be recycled and re-used. Specialized companies can recycle your product to increase the amount of reusable materials and minimize the amounts which need to be properly disposed.
- This product might also use batteries, which should not be thrown away when depleted, but should be handed in and disposed of as small chemical waste.
- Please find out about the local regulations regarding the disposal of the television, batteries, and packaging materials whenever you replace existing equipment.

## **2. BEFORE USE**

The 46" WVGA (wide-screen with VGA resolution) Plasma Display is an ideal product for individual users and commercial exhibitioners. The product is a precise electronic product. Users should read the following instructions carefully to maximize the performance of the product:

### **2.1 Unpacking**

- The product is packaged in a carton together with the standard accessories. Any optional accessories will be packed separately in another carton.
- The weight of the Plasma Display is approx. 37 kg. Due to the size and weight of the product, it is recommended that the unit be moved by a minimum of 2 people.
- The protective glass and the glass substrate are installed on the front of the product. Since both glasses can be broken and scraped easily, move the product gently. Never place the unit with the glass facing down unless it is protected with pads.
- When opening the carton, check that the product is in good condition and that all standard accessories and items are included.
- Whenever possible, use the handles on the back of the Display for transport.

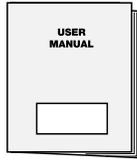
### **2.2 Installation**

- Due to the high power consumption, always use the plug exclusively designed for this product. If an extended line is required, please consult your service agent.
- The product should be installed on a flat surface to avoid tipping. The distance between the back of the product and the wall should be maintained for proper ventilation.  
Avoid installing the product in the kitchen, bathroom or any other places with high humidity so as not to shorten the service life of the electronic components.
- Please ensure the product is installed horizontally. Any 90 degrees clockwise or counter-clockwise installation may induce poor ventilation and subsequent component damage.
- To protect the screen and avoid screen damage, do not display a still picture for a long time.

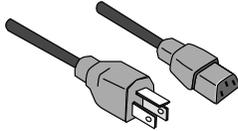
### **3. PRODUCT FEATURES**

- The 46" PDP provides quality image displays and is suitable for a variety of multimedia applications.
- Available input signals:
  - The standard PC module provides RGB (D-SUB, 15 Pin) and digital DVI input connectors, and a RS-232 communication connector (D-SUB, 9 Pin Male).
  - The Video module provides composite video (RCA), S-Video (DIN 4P) and component video (RCA) input connectors, and a composite video (RCA) output connector. It supports the quality input images of DVD and HDTV (480P/720P/1080i), as well as the images of TV systems such as NTSC, PAL and SECAM. The Video module also provides two sets of stereo audio input connectors (RCA).
  - The product supports PC image resolutions up to XGA (1024x768) with a vertical frequency of 85Hz.
- Power Management Function: The machine provides an automatic power control function.
- Fan-free Design: The unit does not require any fans for ventilation, eliminating any bothersome noise that may be generated. It also lowers the power consumption of the unit.
- Others:
  - PIP Function: The user may watch video while working with his or her PC.
  - The product includes a set of built-in 2.0W speakers or can be connected to external 10W+10W speakers. (BAL 4611)
  - The Plasma unit provides high, medium and low color temperature options. The user may customize their favorite color temperature.
  - The user may work with the video module or enhanced PC module to expand the applications of the product to meet any special requirements.

**4. PACKAGE CONTENTS**

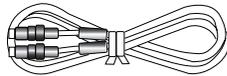


User Manual (1x)

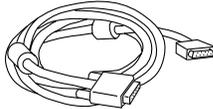


Power cable (1x)

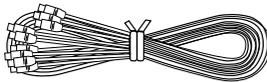
**Note:** Power cable will vary depending on shipping area.



S-Video cable (1x).



SUB-D, 15 PIN cable (1x).

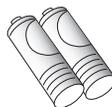


AV- cable (1x).

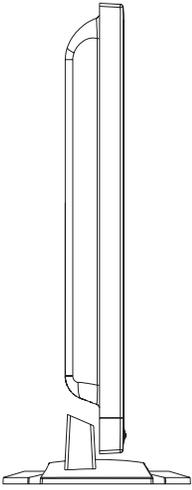


Remote control (1x)

Including batteries UM-4 (2x).



## 5. NAMES AND FUNCTIONS OF PARTS



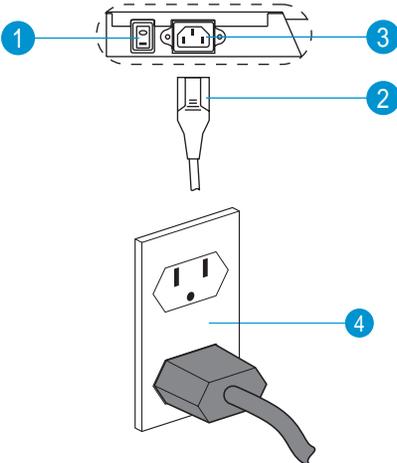
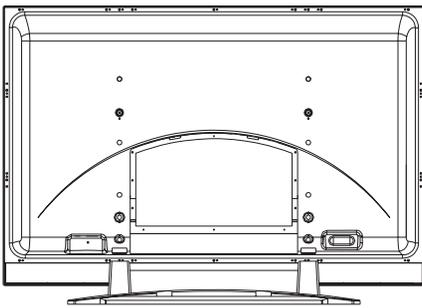
### 5.1 Sideview

- ① Power switch.
- ② Power cable.
- ③ Power jack.
- ④ Power outlet on the wall.

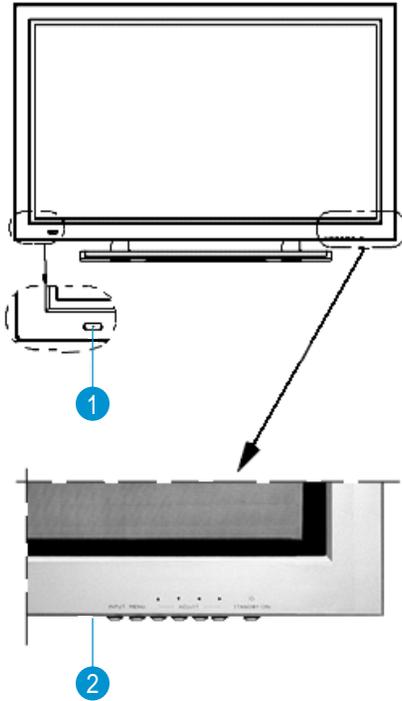
- Connect the power cable to the product, then connect the main plug into the wall outlet.

**Note:** Power plug types vary between countries. The power plug shown may not be the type supplied with your set.

- Push the power switch (0 = OFF / 1 = ON). The power indicator on the front of the panel should now display red, indicating that the Plasma Display is in standby mode.



## 5.2 Front View



### ① Remote control window

The window includes the power indicator and the IR remote control sensor. LEDs are used to indicate the power status.

- Indicator ON (red) means: 'Standby' mode.
- Indicator ON (green) means: 'Power ON' mode.
- Indicator flashing (red/green) alternately means: 'Power Saving' mode or switching from Standby to Power On.

### ② Buttons: The functions of the buttons are described as follows:



### INPUT

Select appropriate signal source directly. (Depending on the module, the available signal source options may vary).

- PC Module: RGB 1 → RGB 2 (Circular display).
- PC Module + Video Module: RGB 1 → RGB 2 → AV1 → S-Video → Y Cb/Pb Cr/Pr (circular display).

**Note:** When pressing this button to display 'OSD Menu', the signal sources can be selected by using the ▲ ▼ arrow buttons.

### MENU

Enter 'OSD Menu' and select 'OSD Menu' page, the pages appear in the following sequence: Display → Image (for PC input) or AV System (for Video input) → Audio → Language and Screen Saver → Misc. → Status (circular display).

### ▲ ▼ UP/Down buttons

- They are used as Up/Down buttons in the 'OSD Menu' screens.
- They are used for quick adjustment when the 'OSD Menu' is not displayed on the screen. The screen displays in the following sequence: Balance → Bass → Treble → Volume → PIP Source\* → Contrast\* → Brightness\* (circular display). The adjustment is made in conjunction with the ◀ ▶ arrow buttons.

**Note:** 'PIP Source' is only for PC input. 'Contrast' and 'Brightness' is only for Video input.

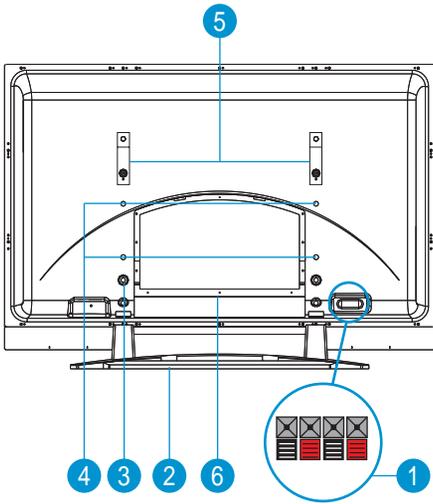
### ◀ ▶ Left/right arrow buttons

- A. These buttons are used in the 'OSD Menu' screen.  
The right button ▶ has the function of Enter.
- B. These buttons can be used for the adjustment of the volume when the 'OSD Menu' is not shown on the screen. Press the left button ◀ to reduce the volume. Press the right button ▶ to increase the volume.

### STANDBY/ON

Is used to activate the Display or return it to standby mode.

### 5.3 Rear View



- ① Speaker Terminals: Can be used to connect external speakers (optional accessories) to the product.  
Maximum power output: 10W + 10W.
- ② Stand.
- ③ Stand mounting holes: use the standard screws to mount the stand.
- ④ Wall Mount holes: use the standard screws to attach the wall mount (optional accessory).
- ⑤ Transport handles: use the handles to help transport the product. The transport handles must be removed in order to mount the product to the wall.
- ⑥ Signal input terminals.



#### PC Module

##### PC In (Audio)

For PC Audio input purposes. Connects to the PC Phone jack Audio output of the PC.

##### RGB Video In

For PC display purposes. Connects to the SUB-D 15 PIN analog output connector of the PC display card.

##### DVI Video In

For high quality PC display purposes. Connects to the DVI-I digital output connector of the PC display card.

##### RS-232C

Is a SUB-D, 9 Pin male terminal, used as a control port for serial communication between PC and Panel.

#### Video Module



##### Video Out

is a composite video output terminal (RCA connector) for connecting to other displays.

**Audio In 2**

Is an audio input terminal (RCA connector) connecting to the audio output terminal of the video output device. 'CVBS In' and 'S-Video' share this audio terminal.

**Video In**

Is a Composite video input terminal (RCA connector) connecting to the video output terminal of the video output device.

**S-Video**

Is a Y/C S-Video input terminal (DIN 4 PIN) connecting to the S-Video output terminal of the video output device.

**Y/CbPb/CrPr**

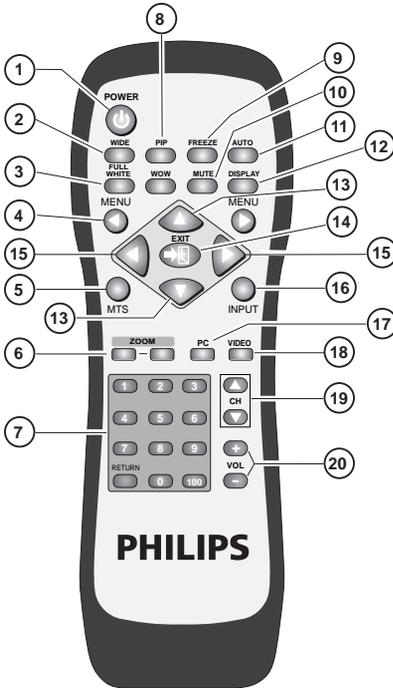
Is a Component video input terminal (RCA connector) connecting to the Component output terminal of the video output device.

**Audio 1**

Is an audio input terminal connecting to the audio output terminal of the video output device. The component video and PC input signals share this terminal.

## 5.4 Remote Control

Function of buttons:



### 1. POWER

Press this button to turn the power On or Off.

### 2. WIDE

Press this button to select wide screen. Pressing this button again will restore the original size of the screen.

### 3. FULL WHITE

Displays a full white screen. This can be used to reduce image retention after a long period of time displaying a still picture. Press again to return to picture.

### 4. MENU ◀ and MENU ▶

Switch OSD pages in the following sequence (circular display).



### 5. MTS

TV bi-language selection.

### 6. ZOOM + AND ZOOM -

Use these buttons to zoom in or zoom out on the displayed image.

### 7. NUMBER BUTTONS

### 8. PIP

Use this button to open and adjust the size of the picture-in-picture in the following sequence:

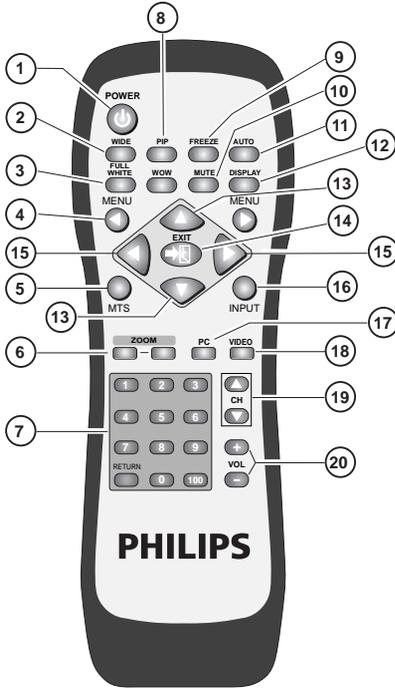
Picture-in-picture open (small) → Screen (medium) → Screen (large) → Picture-in-picture closed (circular display).

### 9. FREEZE

Press this button to “freeze-frame” the current screen. You may press this button again to continue playing or play shall resume automatically after 100 seconds.

### 10. MUTE

Press this button to mute the sound. Press again to reactivate the sound. Sound is also reactivated if the power is turned Off and then On or if the volume level is changed.



**11. AUTO**

- The Display automatically adjusts the phase, vertical/horizontal position when pressing this button in PC mode.
- The Display chooses the appropriate video format automatically when pressing this button in Video mode.

**12. DISPLAY**

Image and system information display ON/OFF.

**13. Up/Down arrows ▲ ▼**

Use these buttons to adjust the 'OSD Menu' up and down or to select 'Quick Menu'.

**14. EXIT**

Press this button to exit the 'OSD Menu'.

**15. Left/Right arrows ◀ ▶**

Use these buttons to adjust the 'OSD Menu' left and right.

**16. INPUT**

Press this button to select the signal sources directly. (Depending on the module, the available signal source options may be different).

**PC Module**

RGB 1→RGB 2 (circular display).

**PC Module + Video Module**

RGB1→RGB 2→AV1→S-Video→Y Cb/Pb Cr/Pr (circular display).

**17. PC**

Press this button to select the PC signal source. The signal sources appear in the following sequence:

RGB 1 (PC Module SUB-D Terminal), RGB 2 (PC Module DVI Terminal).

**18. VIDEO**

Press this button to select the video input signal source. The signal sources appear in the following sequence:

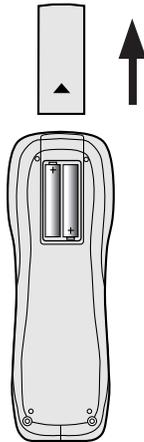
AV1, S-Video, YCb/PbCr/Pr.

**19. TV CHANNEL SELECTION**

**20. VOL + and VOL -**

Press the volume buttons to increase or decrease the sound volume level.

**Note:** 5, 7 and 19 require TV Module installed.

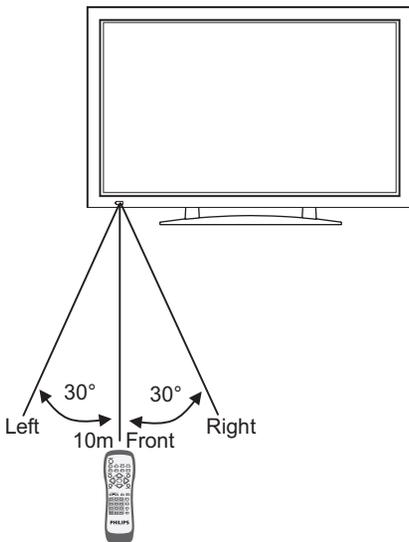


### Inserting of Remote Control Batteries

- Turn the remote control upside down, press and slide off the battery cover.
- Insert two AA batteries in the remote control as shown in the diagram. (Positive + and negative polarities - must match the markings in the compartment).
- Place the cover in reverse order until the lock snaps.

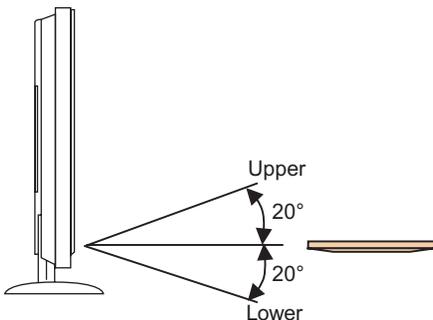
### Scope of Remote Control

- Be sure the remote control is pointed towards the remote control window on the display.
- No obstacles should be placed between the remote control and the remote control window.
- The effective receiving scope for the signal is 10 meters to the front of the remote control window, and 30 degrees to the left or right side and 20 degrees above or below the control window.

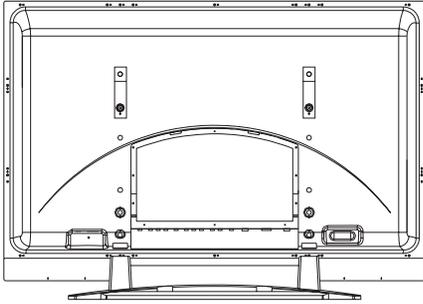


### Use of Remote Control

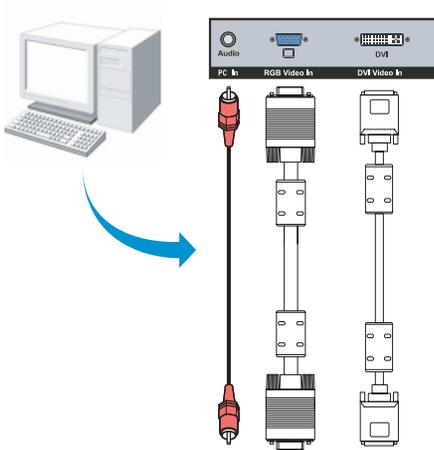
- To ensure a normal operation, the remote control should not be dropped or damaged in any way. It should also be kept dry and away from all heat sources.
- Battery replacement is necessary when the remote control acts inconsistently or stops operating the Plasma Display.



## 6. CONNECTION TO EXTERNAL EQUIPMENT



**Rear view**



### 6.1 PC Module

For operating the Plasma monitor as a PC monitor.

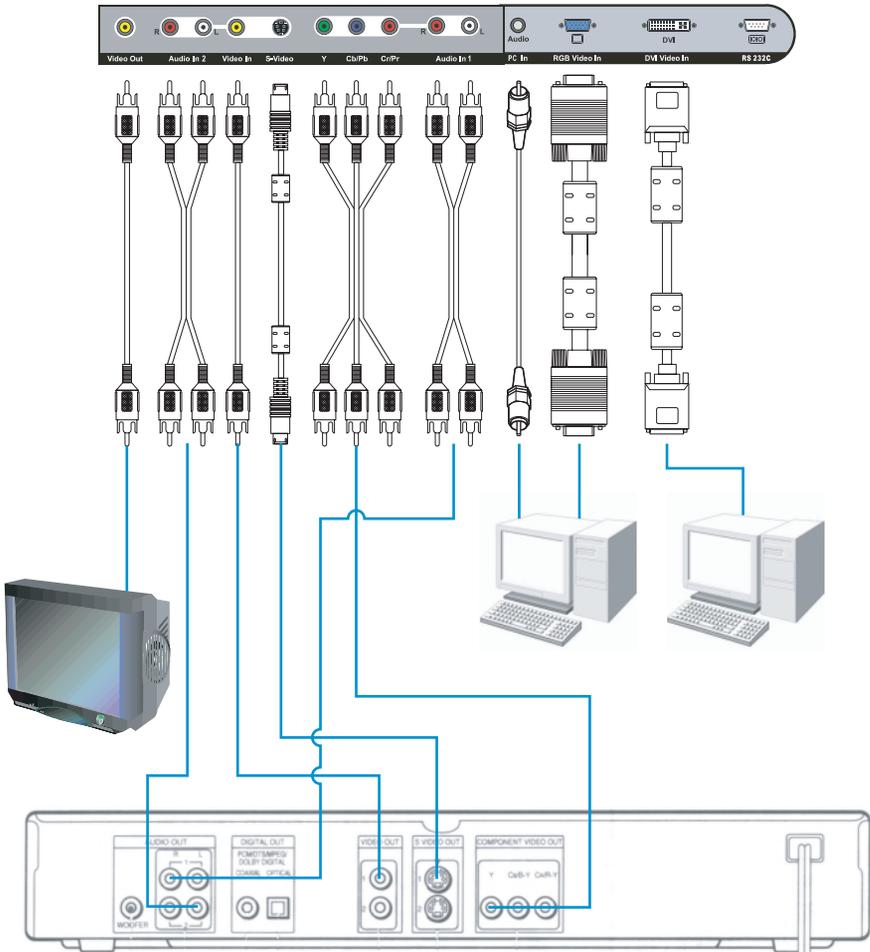
SUB-D, (15 PIN) connects to analog RGB output interface (Input option RGB 1).

DVI connects to digital RGB output interface (Input option RGB 2).

**Note:**

- The DVI connector type of the Display is DVI-I, which does not support analog signal input.
- The RS-232 connector of the Display provides a transmission interface for professional technicians to update firmware, without providing additional communication functions.

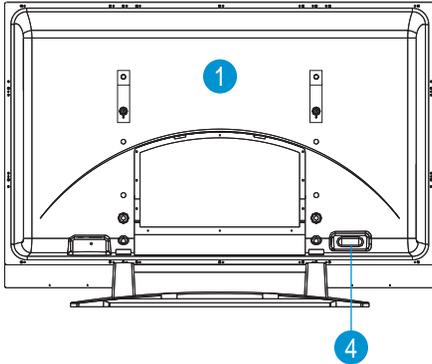
## 6.2 PC Module + Video Module



- The functions of SUB-D, DVI and RS-232 terminals are the same as for the PC module.
- The component terminal (Y/PbCb/PrCr) connects to the component output of a video output device (such as DVD or HDTV TUNER). The audio should input via Audio 1 (INPUT Option: Y Cb/Pb Cr/Pr).
- The S-Video terminal connects to the Y/C S-Video output of a video output device (such as S-VHS or DVD). The audio should input via Audio 2 (INPUT Option S-Video).
- CVBS In terminal connects to the CVBS (Video) output of a video output device (such as VHS, S-VHS or DVD). The audio should input via Audio 2 (INPUT Option AV1).

- The S-Video and CVBS inputs share the Audio 2 input.
- The CVBS Out terminal can be used to connect the unit to another TV or display and transmits the signal input via CVBS to the other display.

### 6.3 Connection to External Speakers:

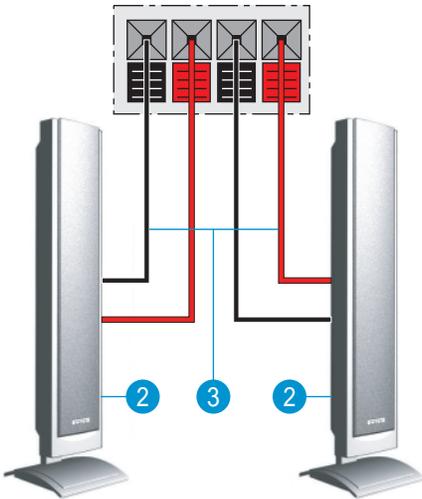


- ① PDP Rear View
- ② Speakers (Optional)
- ③ Speaker Wire
- ④ Speaker Terminal

- Open the terminals and insert the speaker wire, making sure that the copper is making good contact with the metal terminal and the colors on the wire match those on the terminal (red to red and black to black).
- Close the terminals to clamp the speaker wire in place.

**Note 1:** When connecting the external speakers, remember to set the speaker to External mode in the 'Audio' page of the 'OSD Menu'. (Refer to Chapter 'Basic Operation').

**Note 2:** Please use the speaker wire enclosed with the external speakers, otherwise we cannot guarantee that our product can fit the standard of electro magnetic interference.



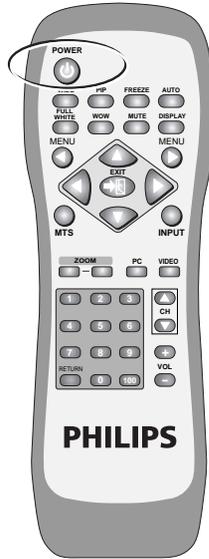
## 7. BASIC OPERATION

### 7.1 Power ON/OFF

#### Display standby mode

- Press the 'POWER' button to turn on the Display. The power indicator changes from red to green.
- Press the 'POWER' button again to return the Display to standby mode. The power indicator changes from green to red.

**Note:** The power indicator will flash for a few seconds before changing color.



### 7.2 Selection of Input Mode

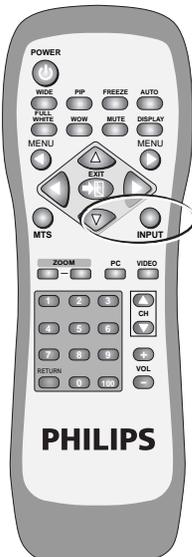
- Press the **INPUT** button. A menu of input signal sources shall appear. Use the **▲ ▼** buttons to select the signal source you want and press the **▶** button to confirm the selection.
- You may also press the **INPUT** button repeatedly until the signal source you want is highlighted. The signal sources are displayed in the following sequence (depending on the module, the sequence might be different):

#### A. PC Module

▶ RGB1 → RGB2

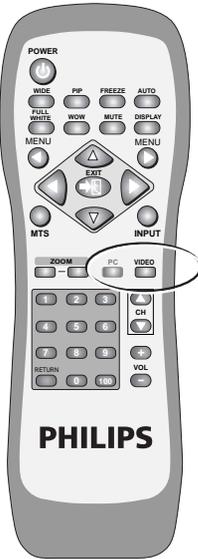
#### B. PC Module + Video Module

▶ RGB1 → RGB2 → AV1 → S-Video → YCb/Pb Cr/Pr



### 7.3 Selection of VIDEO Input Mode

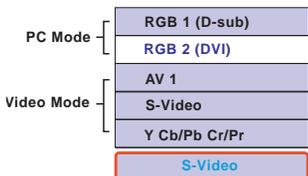
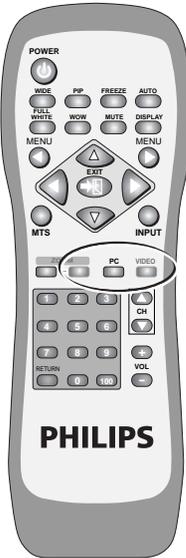
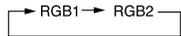
Press the 'Video' button repeatedly to select a signal source from the Video module. The signal sources are displayed in the following sequence:



### 7.4 Selection of PC Input Mode

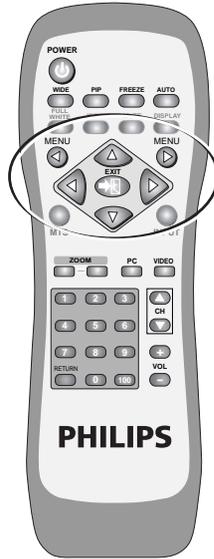
Press the 'PC' button repeatedly to select a signal source from the PC or enhanced PC modules. The signal sources are displayed in the following sequence:

- **PC Module**



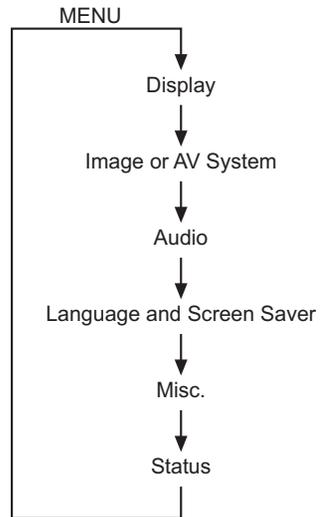
**Input Menu with modes**

### 7.5 OSD Option Adjustment



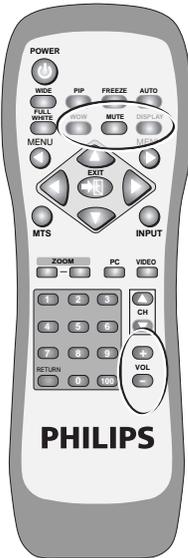
- The buttons for OSD option adjustment are:
  - MENU ◀, MENU ▶
  - Button ▲, Button ▼
  - Button ◀, Button ▶
  - **EXIT button**
- Press the MENU ◀, MENU ▶ to open the last used 'OSD Menu'.
- Press again MENU ◀ or MENU ▶ to select the desired menu page.

**Note:** The menu pages are displayed in the following sequence (circular display):



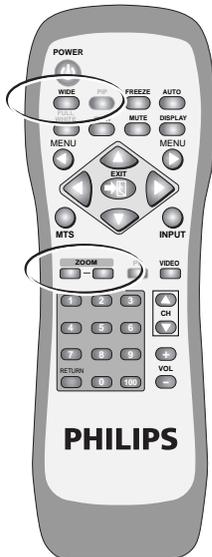
- Use the ▼▲ buttons to adjust the 'OSD Menu' up and down or to select item from Quick Menu.

## 7.6 Sound Adjustment



- Press and hold the **VOL +** button to increase the sound volume level and press and hold the **VOL -** button to decrease the sound volume level.
- Press the **MUTE** button to mute the internal or external speakers. Press the **MUTE** button again to resume the sound at the previous volume.
- Other audio adjustments (such as treble, bass and balance) can be adjusted on the **OSD** Menu.

## 7.7 Zoom Functions



- The Zoom buttons include: **WIDE**, **ZOOM +** and **ZOOM -**.
- By pressing the **WIDE** button, you can zoom in on the image to fill the screen. You can then restore the image to its original size by pressing the **WIDE** button again.

**Note:** When a PC signal is selected, you can switch between the full screen size and the original signal size.

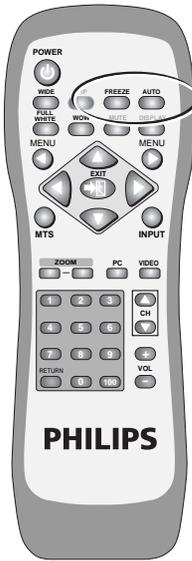
**Note:** When a video signal is selected, you can switch among six screen sizes, including Full, Fill Aspect Ratio, 4:3 to 16:9, LB to 16:9, LB Subtitles to 16:9 and Anamorphic.

- By pressing and holding the **ZOOM +** button you can zoom in on the image gradually. By pressing and holding the **ZOOM -** button, you can zoom out of the image gradually.

**Note:** You can only zoom out of the image to its original size by pressing the **ZOOM -** button. The image cannot be made any smaller with this function.

**Note:** When the image is zoomed in by using the **ZOOM +** key, you can use **▼ ▲ ◀ ▶** arrow buttons to adjust the viewing area.

## 7.8 Other Functions



- If an image cannot be displayed after changing the timing in PC mode, press the **AUTO** button.
- The unit will automatically adjust the phase, horizontal/vertical position to optimize the display.
- Also, if the image cannot be shown after changing the playback system in “Video Input mode”, press the **AUTO** button. The unit will select the appropriate format for the image system.

**Note:** For information about the timing capabilities of the unit, refer to Chapter ‘Factory Settings’.

- Press the **FREEZE** button to freeze (or suspend) the current screen. You may press the Freeze button again to continue the playing.

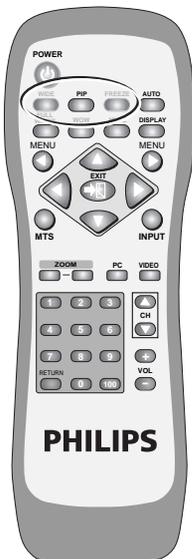
**Note:** You can only freeze the screen by pressing the **FREEZE** button. The play back system keeps playing when the screen is frozen.

- You can press the **PIP** button to show the picture-in-picture screen. The screen will change as follows when you press the **PIP** key consecutively:

→ Sub-picture open (small) → Medium → Large → Sub-picture closed →

**Note:** The “Picture-in-picture screen” can receive video images while the PC outputs the display to the Main Screen, so the prerequisites for the display of the sub-picture include:

1. A video module.
2. The Main Screen (must be a PC display).
3. The video image source must also be connected.



- The location of the sub-picture on the screen and the video image source can be set from the OSD menu.

**7.9 OSD Functions**

General Description of OSD Function Pages:

**PC Table**

Display	Image	Audio	Language and Screen saver	Misc	Resolution
Brightness	H. Position	Volume	Language	OSD Position	V Frequency
Contrast	V. Position	Treble	Image Reverse	OSD Timeout	H Frequency
Red	Phase adj.	Bass	Image Move	OSD Rotation	PIP Input
Green	Sync adj.	Balance	Move Time	Colour Temp	PIP System
Blue	Aspect Ratio	Mute	WOW	Reset to default	
Reset	DPMS	Speaker	Advanced Mode	PIP Settings	
			Gamma		
			Colour Space		
			PC User		

**PIP Setting Table**

Display	Misc
Brightness	PIP Size
Contrast	PIP Source
Saturation	PIP Position
Hue	
Sharpness	
Reset	

**AV Table**

Display	AV System	Audio	Language and Screen saver	Misc	Status
Brightness	Aspect Ratio	Volume	Language	OSD Position	Input Source
Contrast	Video Format	Treble	Image Reverse	OSD Timeout	System
Saturation		Bass	Image Move	OSD Rotation	
Hue		Balance	Move Time	Color Temp	
Sharpness		Mute	Advanced Mode	Reset to default	
Reset		Speaker	Gamma	User Color Temp	
			Color Space		
			PC User		

**User Colour Temp Table**

Display
Red
Green
Blue

**Note:** The adjustable items vary depending on the input source.

## 8. OSD PAGES AND FUNCTIONS

### 8.1 Display Pages



#### PC Display page Screen

- Only the Brightness, Contrast and Reset functions can be adjusted when using a PC input signal.

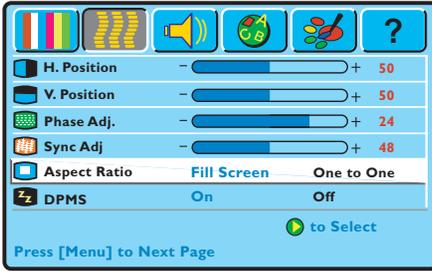
**Note:** To adjust the Brightness of the Red, Green and Blue, select at first **User** in the 'Color Temp' function of the 'Misc'. OSD page. Next, return to the Display page again.



#### VIDEO Display page Screen

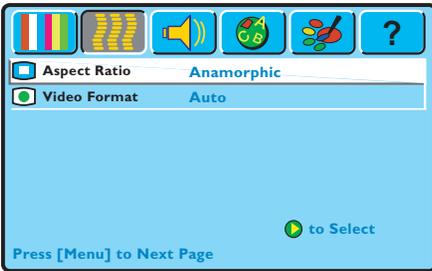
- The Brightness, Contrast, Saturation, Hue, Sharpness and Reset can all be adjusted when using Video input signals.

## 8.2 Image and AV System Page



### PC Image and System page.

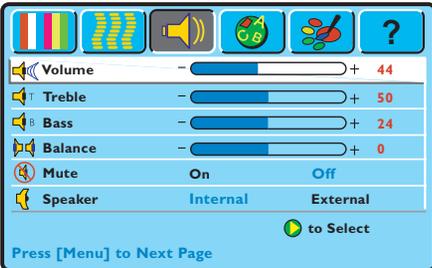
- From PC input signal, the Horizontal position, Vertical position, and Phase sync can be adjusted. The Aspect Ratio can be selected to your liking. The DPMS can be set On or Off.



### VIDEO Image and System page

- From a video signal you can adjust the Aspect Ratio and you can select the Video Format.
- Aspect Ratio**  
The Display provides six Aspect Ratio formats. You can select the most suitable format for the selected signal source. Press the  $\pi$  arrow buttons on the remote control or the display to select: Full, Fill Aspect Ratio, 4:3 to 16:9, LB to 16:9, LB Subtitles to 16:9 or Anamorphic aspect ratio.
- Video Format**  
Select 'Auto' if you do not know which Video Format to select. The display will select the correct signal automatically. Other options are: NTSC-M, PAL-N, PAL-M, PAL-DK/1, SECAM and NTSC-J.

## 8.3 Audio Page

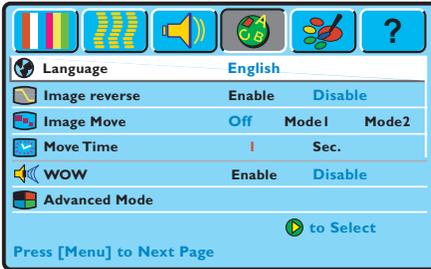


- The adjustable items on the Audio page Volume, Treble, Bass, and Balance. Mute can be switched On or Off. The Speaker option allows you to switch between Internal or External.

**Note:** These Audio options are the same for both PC and Video modes.

## 8.4 Language and Screen Saver Page

### PC and Video Language and Screen Saver Page



- **Language**

You can select the languages provided by OSD from this option.

- **Image Reverse or Image Move**

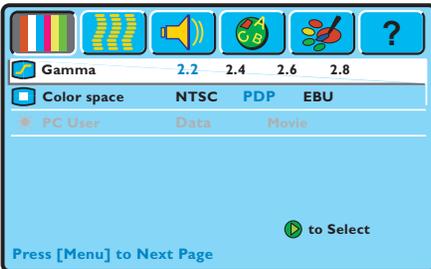
When a still image is being displayed on the screen for a long period of time, use this features to prevent screen burn in and protect your screen.

- **Move Time**

The 'Move Time' function allows you to adjust the length of time between the stages of the 'Image Move' feature.

- **Advanced Mode**

When the Advanced mode is selected, press the  $\pi$  button, a new page will appear. In this page the Gamma value can be selected, as well as the Color Space.



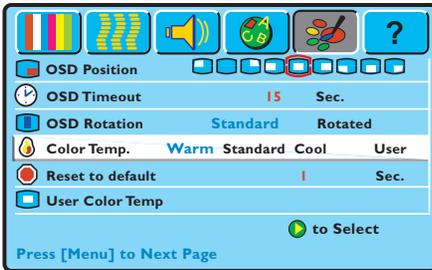
**Note:** The function **PC User** will only be active if the display is switched in 'PC Mode'.

## 8.5 Misc. Page



### PC Misc page

- **OSD Position**  
By means of this option you can select the location of the OSD menu on the screen.
- **OSD Timeout**  
By means of this option you can adjust length of time that the OSD shall remain on screen.
- **OSD Rotation**  
Use this option to rotate the OSD through 90 degrees.
- **Color Temp**  
This allows you to select the Color Temperature you like.  
Select User if you want to adjust the RGB colors by yourself in the 'Display' OSD page. (Switch to the 'Display' OSD page for this action).
- **Reset to Default**  
Use this option to return to the factory settings for the 'Misc' OSD page.
- **PIP Settings**  
This option can be accessed when the display is switched in PC Mode. (For PIP settings see next page).



### VIDEO Misc page

- The **OSD Position**, **OSD Timeout** and **OSD rotation** options are the same as described above for the 'PC Misc' OSD page.
- Your preferred screen color temperature can be selected from the '**Color Temp.**' option. You can choose from Warm, Standard, Cool or User.
- By selecting '**User**', you can adjust the brightness of Red, Green and Blue individually to suit your taste. (See next picture).

### RGB adjustment OSD page.



## 8.6 PIP Settings (PC only)



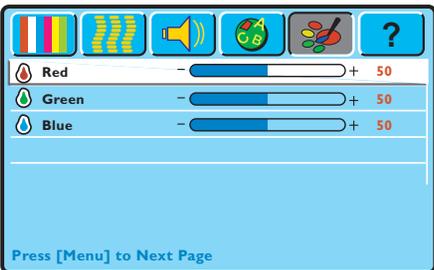
- If PIP is activated by pressing the ► button when the PIP Settings rule is selected in the 'PC Misc' OSD page, next 'Video Display' OSD appears, so you can adjust the colors for the small Picture which will be shown on the screen.
- After color adjustment in this Display menu, press the MENU ► button on the Remote control, so the 'PIP Settings' OSD page will appear, see next picture.



- **PIP Size**  
You can choose between three PIP sizes: Small, Medium and Large. Also the PIP function can be disabled by selecting 'Off'.
- **PIP Source**  
Select the desired PIP input source.
- **PIP Position**  
Select the desired picture position on the screen.

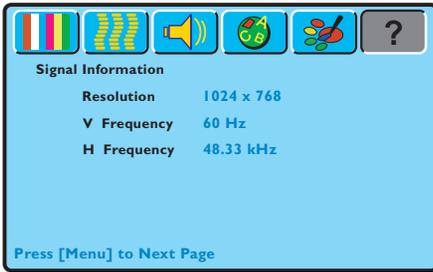
**Note:** The Video, S-Video or Composite terminals must have an input signal for this option).

## 8.7 User Color Temp (AV only)



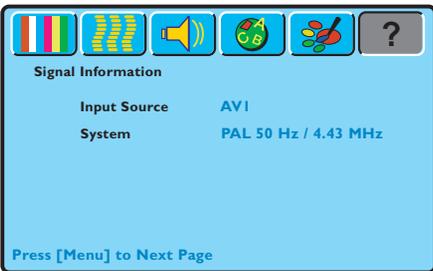
- To access these options, select the option 'User' in the Color Temp function in the Misc. page. You can adjust the brightness of the Red, Green and Blue to suit your personal preference.

## 8.8 Status



### PC Status Page

- This OSD page displays the Resolution and Vertical/Horizontal Frequency when a PC input is operating. If PIP is in use, the sub-picture source and system are also displayed.



### VIDEO Status page

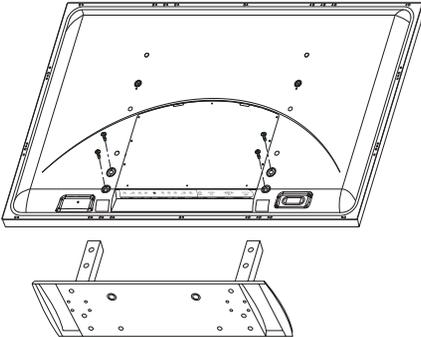
- The Input source and System are displayed when using video signals.

**9. OPTIONAL ACCESSORIES**

**Stand (BM05111)**

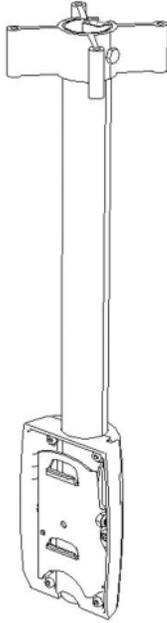


Attach the Stand to the PDP set.



**Speaker Set**





**Ceiling Mount Kit (BM01111)**

**10. TECHNICAL SPECIFICATIONS**

Screen Size:	46" Wide screen
Screen Area:	1007mm(W) x 567.4mm(H)
Aspect Ratio:	16 : 9
External Size:	1138mm(W) x 691mm(H) x 98mm(D) (w/o Stand and handles)
Weight	37kg (w/o Stand)
Resolution:	852 (H) x 480 (V) pixels (Each pixel has R/G/B 3-color cels)
Pixel Dot Pitch:	1.182mm(H) x 1.182mm(V)
Color:	16.7 millions colors (R/G/B each 256 scales) Gray Scale: 256 (R/G/B each 8-bit)
Brightness (Peak Value):	1000 Cd /m <sup>2</sup> (Typical)
Contrast (Dark Room):	1500 : 1 (Typical)
Viewing Angle:	Hor.: More than 160 degrees Vert.: More than 160 degrees
Sound:	SRS Surround
Power Supply:	AC 100V~120V/220V~240V , 50Hz ~ 60Hz
Power Consumption:	330W (Average)
Input Terminals:	<b>PC Module</b> - SUB-D, 15 Pin (Analog RGB Input) - DVI Connector (Digital TMDS Input) - SUB-D, 9 Pin (RS-232 Terminal) <b>Video Module</b> - S-Video Input Mini Din 4 Pin Terminal - CVBS Input RCA Terminal - Comp. Input Y / Pb(Cb) / Pr(Cr) RCA Terminal - 2 sets of Left and Right Stereo RCA Terminals - CVBS Output RCA Terminal
Agent Approval:	CE, FCC, UL, C-UL, TUV
Standard Accessories:	1 x Remote Control 2 x AA Batteries 1 x Power Cable 1 x SUB-D Cable 1 x S-Video Cable; 1 x AV Cable 1 x User Manual

## 11. FACTORY SETTINGS

No	Resolution Horizontal	Horizontal Frequency (KHz)	Vertical Frequency (Hz)	Dot Clock Frequency (MHz)	Remark
1	720 x 400	31.47	70.08	25.17	DOS
2	640 x 400	37.90	85.00	31.50	VESA
3	640 x 480	31.50	60.00	25.18	DOS
4	640 x 480	35.00	67.00	30.24	MAC. (SOG)
5	640 x 480	37.50	75.00	31.50	VESA
6	640 x 480	37.86	72.81	31.50	VESA
7	640 x 480	43.30	85.00	36.00	VESA
8	800 x 600	35.16	56.25	36.00	VESA
9	800 x 600	37.90	60.32	40.00	VESA
10	800 x 600	46.90	75.00	49.50	VESA
11	800 x 600	48.08	72.19	50.00	VESA
12	800 x 600	53.70	85.00	56.25	VESA
13	832 x 624	49.00	74.00	57.27	MAC. (H++V)
14	1024 x 768	48.40	60.00	65.00	VESA
15	1024 x 768	56.50	70.00	75.00	VESA
16	1024 x 768	60.00	75.00	78.75	VESA
17	1024 x 768	68.70	85.00	94.50	VESA

The manufacturer has setup 17 signal modes as shown in the following table:  
Factory Signal Settings (for RGB mode)

- When the signal received by the Display exceeds the allowed range, a warning message 'Signal Out of Range' will appear on the screen.
- You can confirm the input signal format by selecting the '**Status page**' from the OSD Menu.

## **12. CLEANING AND TROUBLESHOOTING**

### **Important**

- Make sure that the power cable is unplugged from the socket before cleaning the product.
- Never use solvent, thinner, benzene or alcohol to clean the Display. Such chemicals may damage the cabinet, screen glass and remote control, and cause the paint to peel.

### **Cleaning the cabinet and Remote Control**

- Use a soft cotton cloth for cleaning.
- If the cabinet or remote control are dirty, use a soft cloth dampened with water to clean the Display. Wring water out of the cloth before cleaning, to prevent water from penetrating into the cabinet. Wipe the Display with a dry cloth after cleaning.

### **Cleaning of Screen**

- Use a soft cotton cloth to clean the screen gently.
- The screen glass is very fragile. When cleaning, take care not to scratch or damage the screen surface. Don't press or tap the screen to avoid cracking. When the screen is dirty, use a soft cloth moistened with water to clean the Display. Wring water out of the cloth before cleaning, to prevent water from penetrating into the cabinet. Wipe the Display with a dry cloth after cleaning.

### **Simple Troubleshooting**

If the Display fails or the performance changes dramatically, check the Display in accordance with the following instructions. Remember to check the peripherals to pinpoint the source of failure. If the Display still fails to perform as expected, contact the dealer for assistance.

### Problem:

### Measures:

No Power  
(Power indicator does not light)

- Remove the power cable from the power outlet for 10 seconds, then re-insert the plug into the outlet.

'No Input Signal' message appears.

- Check that the signal line is connected properly.
- Check that the power of the relevant peripherals is turned on.
- Check that the Input option that has been selected matches the input signal.

The remote control does not work.

- Check the batteries for correct placement.
- Replace with new batteries.
- Check to make sure the Remote Control is within operating range.
- Check to make sure the Remote Control is pointed to the Remote Control Window on the Display.
- Check that there are no obstacles between the Remote Control and the Remote Control Window.
- For more information about the Remote Control, refer to Chapter Basic Operation.

Flashing spots or stripes appear on the screen.

- Check that there is no emitter sources (Car, HV cable or Neon lamp) or other possible interference sources.

Image color or quality deteriorates.

- Check that all the video settings are adjusted appropriately, such as brightness, contrast, color etc.
- For more information about video settings, refer to 'OSD Functions' in the chapter 'Basic Operation'.

Screen position and size are incorrect.

- Check that the screen position and size is adjusted appropriately.

Image or color is incorrect.

- Check that the signal line is connected properly.
- When connecting to a PC, you can change the resolution of PC to acquire correct image. The discrepancy of the PC output signal may affect the display of the image.

**Problem:****Measures:**

The external speaker has no sound.

- Check that the speaker cables are connected appropriately.
- Check that the Display is not in 'Mute' mode.
- Check that the audio signal lines from the peripherals are connected properly.

The power indicator flashes.

- Check that the input signal line is properly connected.
- Check that the screen is not in 'Power Save' mode.

The input image and signal is not received appropriately. 'Signal 'Out of Range' message appears.

- Select the correct input signal.
- For more information, refer to chapter 'Factory Settings'.

## **13. LIMITED WARRANTY (EUR)**

### **Two Year Free Labor Two Year Free Parts**

#### **WHO IS COVERED?**

You must have proof of the date purchased to receive warranty service. A sales receipt or other document showing the date that you purchased the product is considered proof of purchase.

#### **WHAT IS COVERED?**

Warranty coverage begins the day you buy your product. For two years thereafter, all defective parts will be repaired or replaced and labor is free. After two years from the day of purchase, you pay for the replacement or repair of all parts, and for all labor charges. All parts, including repaired and replaced parts, are covered only for the original warranty period. When the warranty on the product expires, the warranty on all replaced and repaired parts also expires.

#### **WHAT IS EXCLUDED?**

Your warranty does not cover:

- labor charges for removal, installation or setup of the product, adjustment of customer controls on the product, and installation or repair of antenna systems outside of the product.
- product repair and/or part replacement because of misuse, accident, unauthorized repair or other cause not within the control of Philips Consumer Electronics Europe.
- reception problems caused by signal conditions or cable or antenna systems outside the unit.
- a product that requires modification or adaptation to enable it to operate in any country other than the country for which it was designed, manufactured, approved and/or authorized, or repair of products damaged by these modifications.
- incidental or consequential damages resulting from the product. (Some states do not allow the exclusion of incidental or consequential damages, so the above exclusion may not apply to you. This includes, but is not limited to, prerecorded material, whether copyrighted or not copyrighted.)
- modifications or adaptations to enable the product to operate in any country other than the country for which it was designed, manufactured, approved and/or authorized, or the repair of products damaged by these modifications.

- normal wear and tear (decreased light output of PDP module) over the product's lifetime.
- phosphor burn. Do not display static images for prolonged periods, otherwise phosphor burn might appear on part of the panel.
- limited quantity of cells (fine pixel elements) that do not produce light, or that remain lit after they should have turned off.

**WHERE IS SERVICE AVAILABLE?**

Warranty service is available in all countries where the product is officially distributed by Philips Consumers Electronics Europe.

In countries where Philips Consumers Electronics Europe does not distribute the product, the local Philips service organization will attempt to provide service (although there may be a delay if the appropriate spare parts and technical manual(s) are not readily available).

**MAKE SURE YOU KEEP ...**

Please keep your sales receipt or other document showing proof of purchase. Attach it to this owner's manual and keep both nearby. Also keep the original box and packing material in case you need to return your product.

**BEFORE REQUESTING SERVICE ...**

Please check your owner's manual before requesting service. Adjustments of the controls discussed there may save you a service call.

**TO GET WARRANTY SERVICE OR IF YOU HAVE QUESTIONS ...**

Please contact Philips at one of the telephone numbers below:

Austria . . . . .	01 5465 75603
Belgium . . . . .	02 275 0701
Cyprus . . . . .	800 92256
Denmark . . . . .	35 25 87 61
Finland . . . . .	09 2290 1908
France . . . . .	03 8717 0033
Germany . . . . .	0696 698 4712
Greece . . . . .	00800 3122 1223
Ireland . . . . .	01 601 1161
Italy . . . . .	02 4827 1153
Luxembourg . . . . .	26 84 3000
Netherlands . . . . .	053 482 9800
Norway . . . . .	22 70 82 50
Poland . . . . .	00800 311 1338
Portugal . . . . .	800 831 363
Spain . . . . .	917 456 246
Sweden . . . . .	08 632 0016
Switzerland . . . . .	02 2310 2116
United Kingdom . . . . .	0207 949 0069



## **14. LIMITED WARRANTY (USA)**

### **OneYear Free Labor**

### **OneYear Free Parts**

#### **WHO IS COVERED?**

You must have proof of the date purchased to receive warranty service. A sales receipt or other document showing the date that you purchased the product is considered proof of purchase.

#### **WHAT IS COVERED?**

Warranty coverage begins the day you buy your product. For one year thereafter, all defective parts will be repaired or replaced and labor is free. After one year from the day of purchase, you pay for the replacement or repair of all parts, and for all labor charges. All parts, including repaired and replaced parts, are covered only for the original warranty period. When the warranty on the product expires, the warranty on all replaced and repaired parts also expires.

#### **WHAT IS EXCLUDED?**

Your warranty does not cover:

- labor charges for removal, installation or setup of the product, adjustment of customer controls on the product, and installation or repair of antenna systems outside of the product.
- product repair and/or part replacement because of misuse, accident, unauthorized repair or other cause not within the control of Philips Consumer Electronics North America.
- reception problems caused by signal conditions or cable or antenna systems outside the unit.
- a product that requires modification or adaptation to enable it to operate in any country other than the country for which it was designed, manufactured, approved and/or authorized, or repair of products damaged by these modifications.
- incidental or consequential damages resulting from the product. (Some states do not allow the exclusion of incidental or consequential damages, so the above exclusion may not apply to you. This includes, but is not limited to, prerecorded material, whether copyrighted or not copyrighted.)
- modifications or adaptations to enable the product to operate in any country other than the country for which it was designed, manufactured, approved and/or authorized, or the repair of products damaged by these modifications.

- normal wear and tear (decreased light output of PDP module) over the product's lifetime.
- phosphor burn. Do not display static images for prolonged periods, otherwise phosphor burn might appear on part of the panel.
- limited quantity of cells (fine pixel elements) that do not produce light, or that remain lit after they should have turned off.

**WHERE IS SERVICE AVAILABLE?**

Warranty service is available in all countries where the product is officially distributed by Philips Consumers Electronics North America. In countries where Philips Consumers Electronics North America does not distribute the product, the local Philips service organization will attempt to provide service (although there may be a delay if the appropriate spare parts and technical manual(s) are not readily available).

**MAKE SURE YOU KEEP ...**

Please keep your sales receipt or other document showing proof of purchase. Attach it to this owner's manual and keep both nearby. Also keep the original box and packing material in case you need to return your product.

**BEFORE REQUESTING SERVICE ...**

Please check your owner's manual before requesting service. Adjustments of the controls discussed there may save you a service call.

**TO GET WARRANTY SERVICE U.S.A., PUERTO RICO OR US VIRGIN ISLANDS ...**

Please contact Philips at:  
1-877-835-1838  
or an authorized service center to arrange repair.

(In U.S.A., Puerto Rico and U.S. Virgin Islands, all implied warranties, including implied warranties of merchantability and fitness for a particular purpose, are limited in duration to the duration of this express warranty. But, because some states do not allow limitations on how long an implied warranty may last, this limitation may not apply to you.)

**TO GET WARRANTY SERVICE IN CANADA ...**

Please contact Philips at:  
800-661-6162 (French Speaking) (within Canada only)  
800-531-0039 (English Speaking)

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**REMEMBER ...**

Please record the model and serial numbers found on the product below. Also, please fill out and mail your warranty registration card promptly. It will be easier for us to notify you if necessary.

MODEL # \_\_\_\_\_

SERIAL # \_\_\_\_\_wo\_\_\_\_\_



# **APPENDIX**

## 1. SERIAL COMMUNICATION PROTOCOL (RS-232)

This serial communication protocol can be used to control the BDS4621 plasma display remotely through the serial RS232C port. This information is provided as is.

Philips cannot accept any liability for damages or malfunctioning of the display caused by operation through the serial port.

The external communication protocol include two parts:

- setup connecting,
- send command.

Default Serial Port:

Baud Rate: 19200  
Parity: none  
Data bits: 8  
Stop bits: 1  
Flow Control: none

### 1.1. Setup Connecting

A typical Packet transaction session is shown in Figure 1

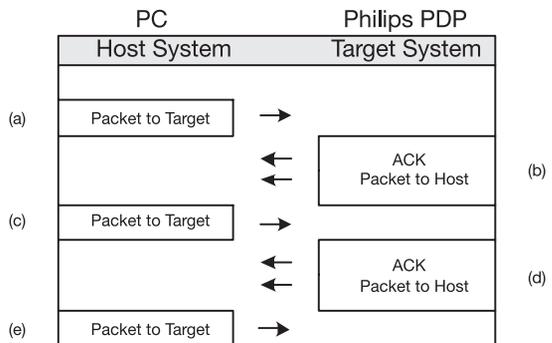


Figure 1

a). 1st Packet to Target (Philips PDP) structure like as below (Table 1)

<b>Packet Header</b>	Byte0	0xBE	Magic Number
	Byte1	0xEF	
	Byte2	0x01	Packet Type
	Byte3	0x05	Packet size (Low)
	Byte4	0x00	Packet size (High)
	Byte5	0xD1	CRC (Low)
	Byte6	0xFA	CRC (High)
<b>Packet Payload</b>	Byte7	0x01	System Info Type
	Byte8	0x02	Version Number
	Byte9	0x00	
	Byte10	0x00	Object ID
	Byte11	0x00	Level

Table 1

b). The Ack of Packet to Host (PC) (Table 2)

<b>Ack</b>	Byte0	0x1E	PAK
<b>Packet Header</b>	Byte1	0xBE	Magic Number
	Byte2	0xEF	
	Byte3	0x01	Packet Type
	Byte4	0x05	Packet size (Low)
	Byte5	0x00	Packet size (High)
	Byte6	0xD1	CRC (Low)
	Byte7	0xFA	CRC (High)
<b>Packet Payload</b>	Byte8	0x01	System Info Type
	Byte9	0x02	Version Number
	Byte10	0x00	
	Byte11	0x00	Object ID
	Byte12	0x00	Leve

Table 2

PAK means that PC will follow the received Packet data

c). Packet same as 1st Packet (Table 1)

d). Same as Ack (Table 2)

e). Packet to Target (Philips PDP) structure (Table 3)

<b>Packet Header</b>	Byte0	0xBE	Magic Number
	Byte1	0xEF	
	Byte2	0x01	Packet Type
	Byte3	0x05	Packet size (Low)
	Byte4	0x00	Packet size (High)
	Byte5	0xA9	CRC (Low)
	Byte6	0xC6	CRC (High)
<b>Packet Payload</b>	Byte7	0x00	System Info Type
	Byte8	0x00	Version Number
	Byte 9	0x00	
	Byte10	0x00	Object ID
	Byte11	0x00	Level

Table 3

## 1.2. Send Command

### 1.1.2. Introduction

Command packets consist of "Header" and "Payload". The Packet Header is consistent for all packets. The Packet Payload type and content varies based on the type of packet sent. The entire packet size is variable, being the sum of the fixed-size Packet Header and variable-sized Packet Payload.

<b>Packet Header (fixed size)</b>	<b>Packet Payload (variable size)</b>
-----------------------------------	---------------------------------------

Table 4

### Packet Header Format

#### Introduction

All Packets use the same Packet Header format illustrated in Table 5.

Byte 0	1	2	3	4	5	6
Magic Number		Type	Packet Payload Size		CRC	
0xBE	0xEF	type	size_lo	size_hi	crc_lo	crc_hi

Table 5

The Packet Header size is fixed at seven bytes (Intel byte ordering is used). The following code fragments are taken from these source files  
The Packet Header definition is shown below:

```
typedef struct
{
    BYTE ePacketType;//type of the
    payload
    WORD nPacketSize;//size of the
    payload
    WORD nCRCPacket;//CRC for the
    entire packet
} PACKET_HEADER;
```

#### Magic Number

The Magic Number is a fixed value that is used to insure packet alignment if there are partial packets received or bytes lost.

The Magic Number is a WORD in length (2 bytes). The Magic Number value is 0xEFBE. Because Intel byte ordering is used, the ls-byte of the word is sent first (byte0 = 0xBE), then the ms-byte (byte1 = 0xEF).

**Packet Type**

The Packet Type (ePacketType) is a BYTE in length number that defines the type of data in the packet. The following entries are valid packet types:

Packet Type Name	Packet Type Number	Description
pt_INVALID	0	Invalid Packet Type
RESERVED	1	RESERVED
pt_EVENT	2	Host can send any event defined in Philips PDP software.
pt_OPERATION	3	Host can send any operation defined in Philips PDP software.

*Table 6: Packet Types*

**Packet Payload Size**

The Packet Payload Size (nPacketSize) is a BYTE that defines the size of the Payload portion of the packet. If the packet contains only header information, this is zero. Therefore, the total byte count of any packet = nPacketSize plus 7 (since the Packet Header is seven bytes long).

**Packet Checksum (CRC)**

Each packet is CRC'ed using the tables later in this document. This number is the CRC value for the complete packet including the Packet Header and Packet Payload. The CRC is calculated with the nCRCPacket value initialized to zero.

**1.1.3. Packet Payload Definition**

**Event Packet Type**

The Event packet is used by the host system to send virtual events (such as Zoom, Source, Auto Adjust, etc.) to the target system. Packet payload size is 6 bytes.

Byte	Field Name	Field Value	Description
0-1	Virtual Event		Virtual Event ID as defined through Configurator
2-5	Parameter		Parameter that can be associated with the event.

*Table 7: Event Packet Type Format*

The source code definition of the Message packet data structure is:

```
typedef struct
{
    WORD        eEvent;
    DWORD       dwParam;
} EVENT_MESSAGE;
```

This lets you send any event defined in Configurator to the system including all remote, IR, or special events.

**Operation Packet Type**

The Operation packet is used by the host system to execute operations (such as Brightness, Contrast, Image Position, etc) in the target system. The Operation packet payload size is 25 bytes.

Byte	Field Name	Field Value	Description
0	Operation Type	1	OPERATION_SET
		2	OPERATION_GET
		3	OPERATION_INCREMENT
		4	OPERATION_DECREMENT
		5	OPERATION_EXECUTE
1-2	Operation		Operation ID as defined in Configurator
3-4	Is Avail		Operation is available
5-8	Operation Target		Used for Operation with Targets. These Targets are defined in configurator. For instance, op_BRIGHTNESS has a Target of either MAIN or PIP window.
9-12	Operation Value		Value of the Set on a set or the Value of the Get on a Return.
13-16	Operation Value of minimum		The Minimum Value of the set for operation command.
17-20	Operation Value of maximum		The Maximum Value of the set for operation command.
21-24	Operation Value of Increment		The Increment Value of the set for operation command.

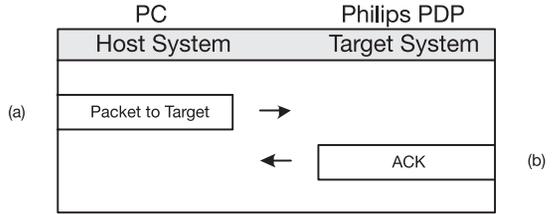
*Table 8: Operation Packet Payload Format*

The source code definition of the Operation packet data structure is:

```
typedef struct
{
    eOPERATION_TYPE    eOpType;
    WORD                eOperation;
    WORD                bisAvail;
    DWORD               dwTarget;
    DWORD               dwValue;
    DWORD               lmMin;
    DWORD               lmMax;
    DWORD               lmInc;
} OPERATION_MESSAGE;
```

This lets the user directly perform logical operations such as "Set Contrast = 80".

**1.1.4. Send Command**



- a. The structure of Command (EX, input select) send to Target (Philips PDP) like as below (Table 9)

<b>Packet Header</b>	Byte0	0xBE	Magic Number
	Byte1	0xEF	
	Byte2	0x02	Packet Type
	Byte3	0x06	Packet size (Low)
	Byte4	0x00	Packet size (High)
	Byte5	0x80	CRC (Low)
<b>Packet Payload</b>	Byte6	0xC7	CRC (High)
	Byte7	0xC9	Virtual Event ID
	Byte8	0x00	
	Byte9	0x00	Parameter
	Byte10	0x00	
	Byte11	0x00	
	Byte12	0x00	

Table 9

- b. Target return to Host (PC) Ack like as below Table 10

Ack	Byte0	0x06	ACK
-----	-------	------	-----

Table 10

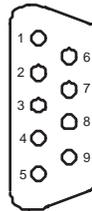
### **1.3. Serial Communication Cable and Parameters**

For external serial communication from a computer to Philips plasma, Philips recommends manufactures use RS-232 communations over a straight through serial cable a 9 pin female D-sub9 connector.

The standard D-sub9 connector on the computer is a male connector, and Philips Plasma, too. The wiring between the computer and Philips plasma is a straight through cable. A 9 pin female to 9 pin female stright through cable is a very standard part and readily available in many lengths.

Female D-sub9 pinout numbering and definitions on both terminal :

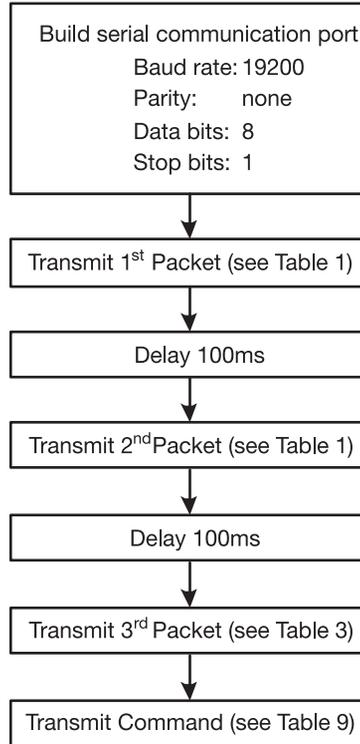
Pin number	Name
2	Transmit
3	Receive
5	Ground



PW Serial uses the following default serial port settings:

- Baud Rate: 19200
- Parity: none
- Data bits: 8
- Stop bits: 1
- Flow Control: none

**1.4. Software Flow Chart**



**1.5. Command List**

a. Event Packet Type command:

<b>command</b>	<b>Packet Header (7 bytes)</b>	<b>Packet Payload (6 bytes)</b>
Power	BE EF 02 06 00 1F C0	E6 00 00 00 00 00
Input select	BE EF 02 06 00 80 C7	C9 00 00 00 00 00
Menu <	BE EF 02 06 00 58 C4	D1 00 00 00 00 00
Menu >	BE EF 02 06 00 89 C5	D0 00 00 00 00 00
↑	BE EF 02 06 00 E6 C7	CF 00 00 00 00 00
←	BE EF 02 06 00 37 C6	CE 00 00 00 00 00
→	BE EF 02 06 00 D5 C7	CC 00 00 00 00 00
↓	BE EF 02 06 00 04 C6	CD 00 00 00 00 00
Exit	BE EF 02 06 00 BA C5	D3 00 00 00 00 00

b. Operation Packet Type command:

<b>command</b>	<b>Packet Header (7 bytes)</b>	<b>Packet Payload (25 bytes)</b>
PC Mode		
Brightness 0 (0)	BE EF 03 19 00 78 50	01 35 02 00
50 (64)	BE EF 03 19 00 88 61	01 35 02 00 00 00 00 00 00 00 40 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
100 (127)	BE EF 03 19 00 68 30	01 35 02 00 00 00 00 00 00 00 7F 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Contrast 0 (0)	BE EF 03 19 00 87 B4	01 36 02 00
50 (128)	BE EF 03 19 00 27 D5	01 36 02 00 00 00 00 00 00 00 80 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
100 (255)	BE EF 03 19 00 37 B5	01 36 02 00 00 00 00 00 00 00 FF 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Red (0)	BE EF 03 19 00 AA C2	01 DF 02 00
Red (255)	BE EF 03 19 00 1A C3	01 DF 02 00 00 00 00 00 00 00 FF 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Green (0)	BE EF 03 19 00 01 BA	01 E1 02 00
Green (255)	BE EF 03 19 00 B1 BB	01 E1 02 00 00 00 00 00 00 00 FF 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Blue (0)	BE EF 03 19 00 FE 5E	01 E2 02 00
Blue (255)	BE EF 03 19 00 4E 5F	01 E2 02 00 00 00 00 00 00 00 FF 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Reset	BE EF 03 19 00 7F 29	05 CB 02 00 00 00 00 00 00 00 FF 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
H. Position (Inc)	BE EF 03 19 00 8A 2A	03 40 02 00 00 00 00 00 00 00 23 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
H.Position (Dec)	BE EF 03 19 00 E4 80	04 40 02 00 00 00 00 00 00 00 23 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
V. Position (Inc)	BE EF 03 19 00 1F 77	03 41 02 00 00 00 00 00 00 00 23 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
V. Position (Dec)	BE EF 03 19 00 71 DD	04 41 02 00 00 00 00 00 00 00 23 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Phase 0	BE EF 03 19 00 7B A0	01 42 02 00

<b>command</b>	<b>Packet Header (7 bytes)</b>	<b>Packet Payload (25 bytes)</b>
Phase 31	BE EF 03 19 00 43 E8	01 42 02 00 00 00 00 00 00 00 1F 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Sync Adj. (Inc)	BE EF 03 19 00 1C 79	03 46 02 00
Sync Adj. (Dec)	BE EF 03 19 00 72 D3	04 46 02 00
Aspect Ratio (Fill Screen)	BE EF 03 19 00 40 89	01 6D 02 00 00 00 00 00 00 00 00 00 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Aspect Ratio	BE EF 03 19 00 D0 48	01 6D 02 00
DPMS ON	BE EF 03 19 00 3C 53	01 01 02 00 00 00 00 00 00 00 00 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
DPMS OFF	BE EF 03 19 00 AC 92	01 02 02 00
Gamma (2.2)	BE EF 03 19 00 04 26	01 E0 02 00 00 00 00 00 00 00 00 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Gamma (2.4)	BE EF 03 19 00 F5 66	01 E0 02 00 00 00 00 00 00 00 00 02 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Gamma (2.6)	BE EF 03 19 00 65 A7	01 E0 02 00 00 00 00 00 00 00 00 03 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Gamma (2.8)	BE EF 03 19 00 57 E5	01 E0 02 00 00 00 00 00 00 00 00 04 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
ColorSpace (NTSC)	BE EF 03 19 00 AC 3E	01 B8 02 00 00 00 00 00 00 00 00 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
ColorSpace (PDP)	BE EF 03 19 00 3C FF	01 B8 02 00
ColorSpace (EBU)	BE EF 03 19 00 5D 7E	01 B8 02 00 00 00 00 00 00 00 00 02 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Language (English)	BE EF 03 19 00 D3 28	01 0B 02 00
Language (French)	BE EF 03 19 00 43 E9	01 0B 02 00 00 00 00 00 00 00 00 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Language (German)	BE EF 03 19 00 B2 A9	01 0B 02 00 00 00 00 00 00 00 00 02 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Language (Italian)	BE EF 03 19 00 22 68	01 0B 02 00 00 00 00 00 00 00 00 03 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Language (Spanish)	BE EF 03 19 00 10 2A	01 0B 02 00 00 00 00 00 00 00 00 04 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Language (S. Chinese)	BE EF 03 19 00 80 EB	01 0B 02 00 00 00 00 00 00 00 00 05 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Language (T. Chinese)	BE EF 03 19 00 71 AB	01 0B 02 00 00 00 00 00 00 00 00 06 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Image Reverse (Enable)	BE EF 03 19 00 7B 0C	01 F8 02 00 00 00 00 00 00 00 00 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Image Reverse (Disable)	BE EF 03 19 00 EB CD	01 F8 02 00
Image move (Off)	BE EF 03 19 00 7E 90	01 F9 02 00
Image move (mode1)	BE EF 03 19 00 EE 51	01 F9 02 00 00 00 00 00 00 00 00 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Image move (mode2)	BE EF 03 19 00 1F 11	01 F9 02 00 00 00 00 00 00 00 00 02 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

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command	Packet Header (7 bytes)	Packet Payload (25 bytes)
Move Time (0)	BE EF 03 19 00 81 74	01 FA 02 00
Move Time (100)	BE EF 03 19 00 6A 5E	01 FA 02 00 00 00 00 00 00 00 00 64 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
OSD Position		
Upper Left	BE EF 03 19 00 C7 0B	01 22 02 00
Upper Center	BE EF 03 19 00 57 CA	01 22 02 00 00 00 00 00 00 00 00 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Upper Right	BE EF 03 19 00 A6 8A	01 22 02 00 00 00 00 00 00 00 00 02 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Mid Left	BE EF 03 19 00 36 4B	01 22 02 00 00 00 00 00 00 00 00 03 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Mid Center	BE EF 03 19 00 04 09	01 22 02 00 00 00 00 00 00 00 00 04 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Mid Right	BE EF 03 19 00 94 C8	01 22 02 00 00 00 00 00 00 00 00 05 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Lower Left	BE EF 03 19 00 65 88	01 22 02 00 00 00 00 00 00 00 00 06 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Lower Center	BE EF 03 19 00 F5 49	01 22 02 00 00 00 00 00 00 00 00 07 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Lower Right	BE EF 03 19 00 01 0C	01 22 02 00 00 00 00 00 00 00 00 08 00 00 00 00 00 00 00 00 00 00 00 00 00 00
OSD Timeout (sec)		
5 (5)	BE EF 03 19 00 00 25	01 10 02 00 00 00 00 00 00 00 00 05 00 00 00 00 00 00 00 00 00 00 00 00 00 00
10 (10)	BE EF 03 19 00 F4 60	01 10 02 00 00 00 00 00 00 00 00 0A 00 00 00 00 00 00 00 00 00 00 00 00 00 00
255 (255)	BE EF 03 19 00 E3 E7	01 10 02 00 00 00 00 00 00 00 00 FF 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Color Temp.		
PC Warm	BE EF 03 19 00 9F 4F	01 F3 02 00 00 00 00 00 00 00 00 02 00 00 00 00 00 00 00 00 00 00 00 00 00 00
PC Standard	BE EF 03 19 00 6E 0F	01 F3 02 00 00 00 00 00 00 00 00 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00
PC Cool	BE EF 03 19 00 FE CE	01 F3 02 00
PC User	BE EF 03 19 00 0F 8E	01 F3 02 00 00 00 00 00 00 00 00 03 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Reset to Default	BE EF 03 19 00 FD F3	05 CA 02 00 00 00 00 00 00 00 00 0A 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Input Select		
RGB1 (D-Sub)	BE EF 03 19 00 15 09	01 D9 02 00
RGB2 (DVI)	BE EF 03 19 00 E4 49	01 D9 02 00 00 00 00 00 00 00 00 03 00 00 00 00 00 00 00 00 00 00 00 00 00 00



